

DeMaria, Eva

From: LACEY David <LACEY.David@deq.state.or.us>
Sent: Tuesday, October 20, 2015 12:57 PM
To: DeMaria, Eva
Cc: LARSEN Henning; 'MANZANO Scott'; MCCLINCY Matt
Subject: FW: Rhone Poulenc modeling

Eva,

As we discussed today DEQ had a slightly different take on the objectives:

1. Regarding VOC/Herbicides: It don't think the question is "whether the groundwater pathway is adequately controlled or should be addressed by a source control alternatives evaluation, or addressed by a remedial action objective and evaluated in the Rhone-Poulenc feasibility study." DEQ has determined that there is a complete pathway to the river and that the groundwater pathway needs to be addressed in the FS. The main issues is does the plume pose a risk to the potential sediment remedy that would necessitate a source control action prior to implementation of the Rhone-Poulenc ROD. DEQ determined the following COI exceed SLVs/PRG at the riverbank: VOCs (1,2-DCB, 1,3-DCB, 1,4-DCB, Chlorobenzene, Benzene, trichloroethene, vinyl chloride) and herbicides (silvex, and dichlorprop). However as presented in our RI/SCE Addendum we determined that "While documented impacts to Willamette riverbed sediments in the area of the Outfall 22B have resulted from the groundwater pathway, there is only one detection of chlorobenzene and one detection of 1,4-dichlorobenzene in river sediment above SLVs in the Outfall 22B area. Based on the lack of current significant sediment SLV exceedances in sediment and the low soil organic carbon partition coefficient of the VOCs and herbicides, it does not appear that the contaminated groundwater plume poses a significant sediment recontamination risk. As such, sediment recontamination via groundwater does not need to be addressed at this time in a separate Source Control Alternatives Evaluation but the groundwater to surface water pathway will need to be carried forward as a remedial action objective in the Rhone-Poulenc feasibility study."
DEQ is requiring Rhone-Poulenc to address the groundwater pathway in the site-wide FS and implement a remedy as part for the ROD. An RAO in the FS will specifically address the groundwater pathway to the river and protection of ecological and human health in the pore-water affected by groundwater discharge.
In our meeting EPA raised concerns that Rhone-Poulenc had not demonstrated that the VOC and herbicides would not pose a recontamination risk to the selected remedy. EPA proposed that the effects of the plumes be modeled to evaluate how it may impact a potential cap. So I think the objective of the modeling regarding VOCs/herbicides is to determine whether the groundwater water pathway poses a risk to the selected remedy that needs to be addressed prior to implementation of the in river remedy. If it does then a source control alternatives evaluation and source control action is needed, if not that the controlling the plume as part of the site-wide remedial action is appropriate. So, the issue here is really a matter of timing. Is a DEQ directed groundwater remedy implemented as part of the upland ROD soon enough or does a groundwater remedy need to implemented sooner? It is not clear that the proposed modeling and 30 year time frame gets at this question.
2. Regarding DDT: Different from the VOC/herbicide plume, DEQ determined that no action is needed by Rhone-Poulenc. DDx does not appear to be migrating through the deep groundwater pathway. DDx emanating from the former Doan Lake sediments are masked by the Arkema sources between the former Doane Lake sediments and the riverbank, and finally the DDx plume on the Siltronic property along the Rhone-Poulenc flow path is of very low concentrations and sporadic. EPA was concerned that Rhone-Poulenc had not demonstrated that the low level DDx plume did not pose a risk to the river sediment. EPA proposed that the effects of the plume be modeled to evaluate how it would impact river sediments. So I think the objective of modeling regarding the DDx plume is to determine whether the Rhone-Poulenc related DDx plume poses a risk to river sediment. A related question, is whether the upland groundwater plume is significantly adding to the sediment pore water concentration/flux over what is already present in pore-water from DDX-impacted sediment that would remain in the river as part of an EPA anticipated remedy or off-shore stranded wedge.

3. Regarding Dioxins: I don't recall specifically discussing modeling Dioxins. DEQ has determined that there is not a current complete groundwater pathway to the river. When the distribution of individual congeners are evaluated, one does not see a consistent repeatable distribution of individual congeners which would form the argument that a dioxin plume is present. Instead, random non repeatable detections of individual congeners are observed.
4. Regarding Outfall 22B: I don't recall specifically discussing modeling the Outfall 22B discharge. This information would be helpful in evaluating the risk posed by the current discharge. What model would EPA use to evaluate this pathway?

After you have had time to discuss this will CDM maybe we should have a phone call to finalize some of the input parameters if they have any questions

Thanks

Dave

From: DeMaria, Eva [<mailto:DeMaria.Eva@epa.gov>]

Sent: Tuesday, October 06, 2015 4:01 PM

To: MANZANO Scott; LACEY David; LARSEN Henning

Cc: MCCLINCY Matt; LIVERMAN Alex; Michael Allen (allenmc@cdmsmith.com); Sheldrake, Sean

Subject: Rhone Poulenc modeling

Hi all-

In our last meeting, we talked about modeling RP's GW plume and assume that it reaches the Willamette at the levels indicated in the wells. CDM Smith is about to commence that modeling and we were wondering if there were additional inputs that you may have to help refine the model.

Here are the questions and the assumptions:

The following is CDM Smith's understanding of the question to be answered:

if groundwater is discharging uncontrolled to the Willamette River at concentrations observed in monitoring wells adjacent to the river and/or groundwater infiltration to stormwater (I&I) associated with stormwater piping (OF22B) would this contamination result in cap failure. If this is the case then further discussion will be necessary with ODEQ as to whether the groundwater pathway is adequately controlled or should be addressed by a source control alternatives evaluation, or addressed by a remedial action objective and evaluated in the Rhone-Poulenc feasibility study.

Several scoping and technical assumptions need to be clarified, including but not limited to the following three: 1) characterization of "source" for input; 2) specific RAO to derive the values for PRGs; 3) chemicals representing Rhone-Poulenc discharge. Tentatively, 4,4-DDD, chlorobenzene, and 2,3,7,8-TCDD equivalent for dioxin/furans, were discussed.

Evaluate model with two input sources:

1. Develop mean and/or maximum values from upland groundwater data as input.
2. Develop mean and/or maximum values from OF 22B stormwater data using analytical results from June 2015 sampling report

Assume no source control, and that the sediments are already in equilibrium with what's coming from the groundwater plume.

Use the In-Water FS PRGs from RAO 4 and/or RAO 8 – see below descriptions.

Compliance point will be porewater within the cap. Compliance concentrations will be determined by EPA.

Model results will be provided for 30 and 100 year time periods.

Start with two cap configurations; Cap activated carbon content, cap thickness, and cap porosity will be simulated assuming the standard Portland Harbor FS reactive cap (5% AC) and the Portland Harbor FS significantly augmented cap (20% AC and low permeability layer).

Seepage velocity will be set at a range of values (ideally, measured seepage velocities from the site) in order to determine cap effectiveness under a range of transport conditions.

RAO 4 - Reduce migration of COCs in groundwater to sediment and surface water such that levels are acceptable in sediment and surface water for human exposure.

RAO 8 - Reduce migration of COCs in groundwater to sediment and surface water such that levels are acceptable in sediment and surface water for ecological exposure.

If you have more inputs, please provide ASAP. CDM plans to have a call with us on their initial modeling attempts on 10/20 with a followup with DEQ around 10/23. However, if necessary, we're available for an earlier conference call to discuss the inputs. Please call or email if you have questions. Thanks.

Eva

Eva DeMaria

Office of Environmental Cleanup | Superfund Site Cleanup Unit #2

U.S. EPA Region 10 | 1200 Sixth Avenue, Ste. 900, ECL-122 | Seattle, WA 98101

P: 206-553-1970 | demaria.eva@epa.gov